2 February 2018

Kazuhiro Kojima

Council Agenda Item 8.2
Attachment 7
Environmental Noise and Odour Impact Assessment Addendum Report
254 Charles Street Launceston

5090_AC/AQ_R
AJM

Attn: Mr Kazuhiro Kojima

Dear Sir,

RE**:** 254 Charles St environmental noise and odour impact assessment addendum.

1. INTRODUCTION

Following responses received by the Launceston City Council with regard the initial development application for the proposed Kosaten restaurant at 254 Charles St, Launceston, Tarkarri Engineering was commissioned by Kazuhiro Kojima provide an addendum to the environmental noise and odour assessment presented in Tarkarri Engineering report 5083_AC_R. The following is considered in this assessment addendum:-

- Existing ambient noise levels in the vicinity of the proposed development
- Potential odour and noise emission impacts at a residential apartment located on the first floor of 256 Charles St.
- Potential for breakout of patron noise from the restaurant building to impact on nearby residential locations.

NB: For details relating to prediction methodologies for noise and odour utilised here see Tarkarri Engineering report 5083_AC_R.

2. EXISTING AMBIENT NOISE

The following instrumentation was used:-

- Environmental noise analyser Larson Davis 831 s/n 1168.
- Environmental noise analyser Larson Davis 831 s/n 1169.

Observed 10-minute measurements were obtained through the evening period (2000 to 2200 hrs) on 30 January 2018 at 2 locations. This data is presented graphically with the following Ln-statistics provided:-

- $\mathbf{L_{Aeq}}$: Equivalent continuous noise level.
- $\mathbf{L_{A10}}$: Noise level exceeded for 10 % of a designated time period (representative of transient noise sources).
- $\mathbf{L_{A90}}$: Noise level exceeded for 90 % of a designated time period (considered the background noise level).

For sake of clarity the other 5 data sets are not shown.

Spectral data (duration of approx. 1-minute) was obtained during the observed measurements at both locations and this is shown graphically in 2 data sets as follows:-

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- 1/3-octave band spectra.
- Narrow band data 0 to 1000 Hz (0.15625 Hz resolution).

Spectral measurements were, as far as practically possible, measured in the absence of local traffic.

Relevant observations were also noted (weather conditions and sources of noise).

Figure 1 provides an aerial view of 254 Charles St and surrounds showing the location of the two ambient noise monitoring locations utilised while figure 2 shows photographs of the monitoring locations.

Figure 3 presents the observed 10-minute Ln-statistics from positions 1 and 2 while figure 4 presents the observed 1-minute spectra measured at positions 1 and 2.

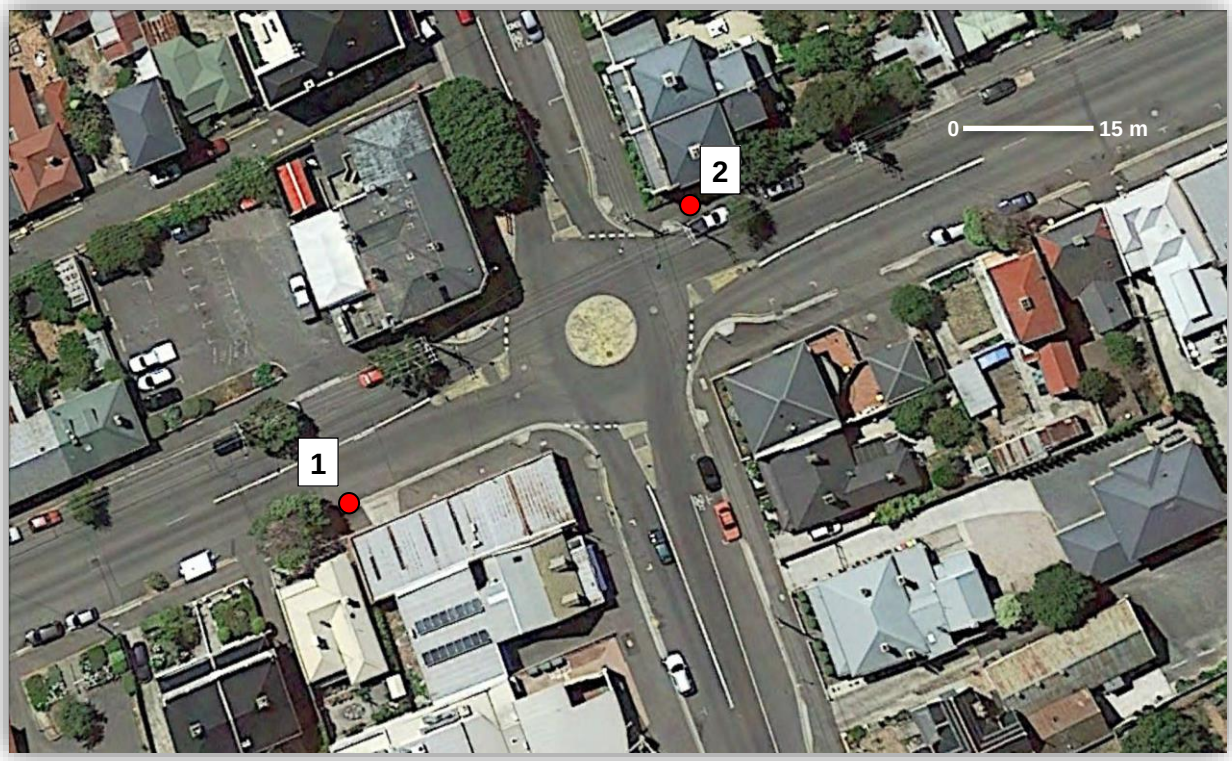


Figure 1 – Aerial view of 254 Charles St with monitoring locations marked.

Figure 2 – Photographs of monitoring positions; a) position 1, b) position 2

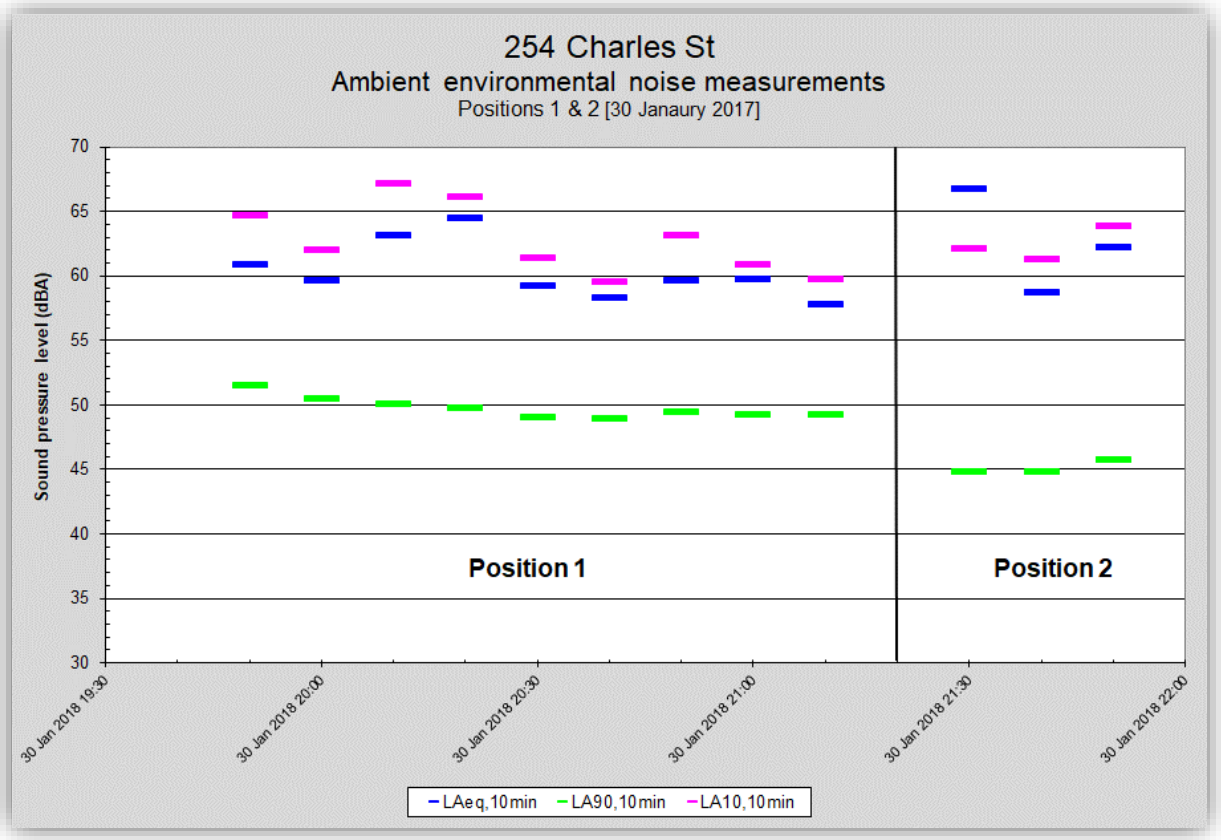


Figure 3 – 10-minute Ln-statistics measured at positions 1 and 2 (30 January 2018, 2000 to 2200 hrs).

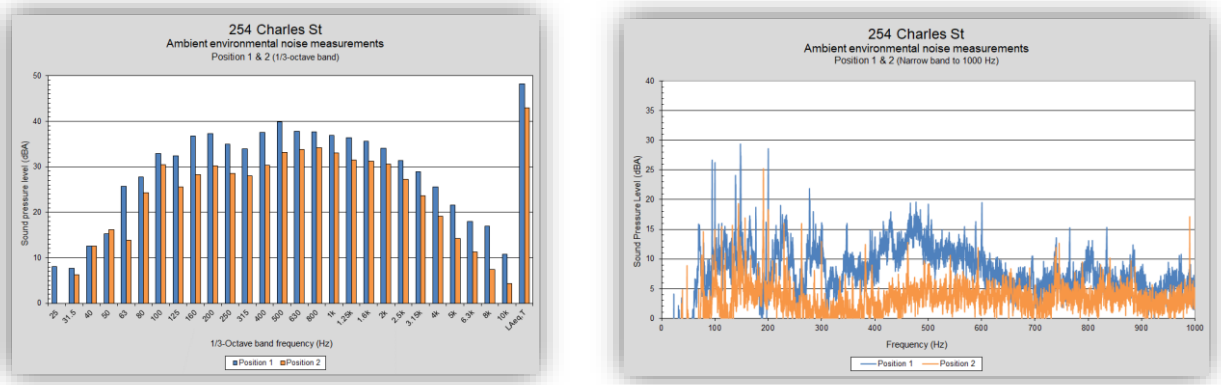


Figure 4 – 1-minute 1/3-octave band and narrow band measurments at postions 1 and 2 (30 January 2018, 2000 to 2200 hrs).

From the above and observations during the measurements:-

- Weather conditions were fine (6 - 3 octa of cloud cover) with calm wind conditions.
- L_{Aeq} and L_{A10} levels were controlled by local traffic pass-bys throughout the entire observed measurement period and were greater than 57 dBA at all times.

- L_{A90} levels at position 1 were controlled by refrigeration mechanical plant operating at 252 Charles St at a level of approx. 49 dBA. At position 2 a HVAC system operating at 262 Charles St controlled L_{A90} levels at approx. 45 dBA.
- Tones at frequencies below 300 Hz generated by the refrigeration mechanical plant (position 1) and building HVAC system (position 2) were audible and measurable at the measurement locations

NB: Predicted noise levels presented in Tarkarri Engineering report 5083_AC_R were well below the ambient noise levels presented here confirming that excessive impact is highly unlikely.

3. POTENTIAL IMPACT ON 256 CHARLES ST

The property at 256 Charles St has an apartment located on the first floor of the premises. Figure 5 below provides a photograph showing the apartment location while figure 6 shows and aerial view with the location of the apartment and the proposed kitchen exhaust discharge at 254 Charles St marked.

Figure 5 – Photograph of apartment at 256 Charles St.

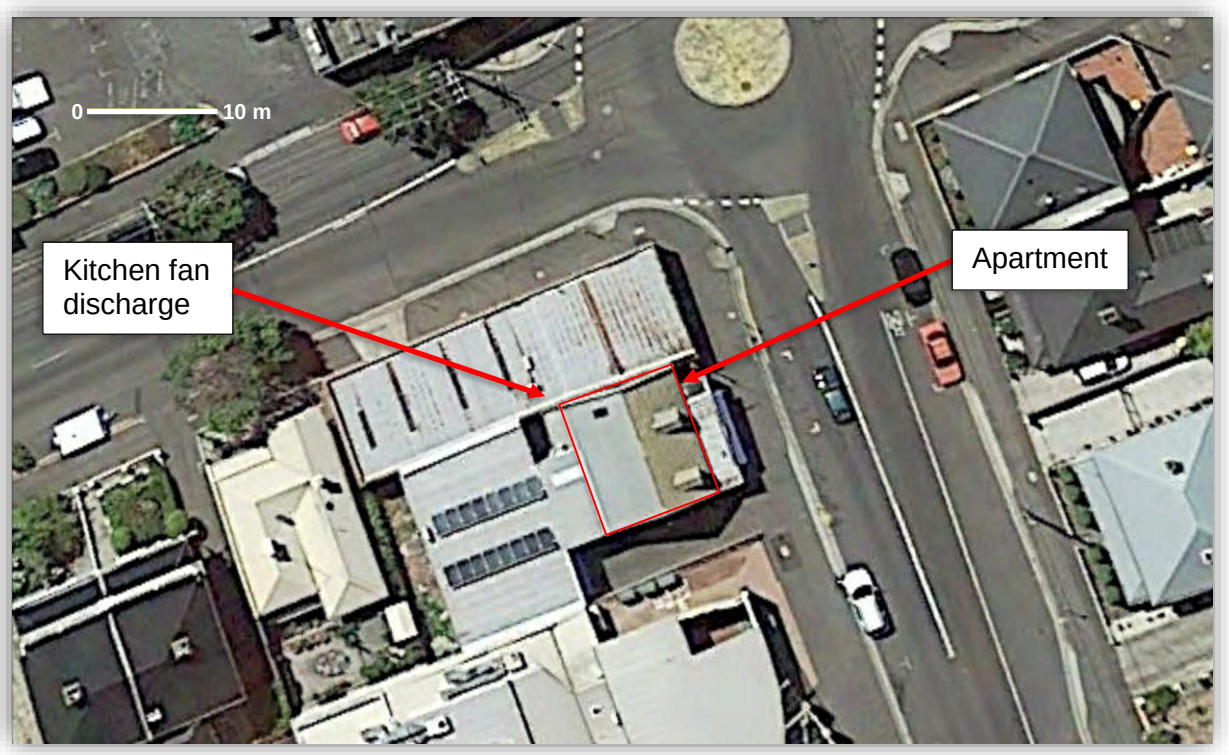


Figure 6 – Aerial view of apartment at 256 Charles St.

3.1 Environmental noise

The western and eastern sides of the pitched roof at 256 Charles St have the potential to be impacted upon by noise emission from the proposed kitchen exhaust fan discharge at 254 Charles St. As such predicted noise levels from the fan are provided in Table 1 below for both sides of the roof pitch.

NB: Windows are only present on eastern side of the roof at 256 Charles St.

Predicted noise emission levels	
Roof pitch side	SPL (dBA)
West	50
East (windows)	27

Table 1 – Predicted noise emission levels.

The predicted noise emission level on the eastern side of the roof where openable windows exist is well below existing ambient noise conditions and excessive impact is considered highly unlikely, even with an open window.

The predicted noise level on the western side of the roof is commensurate with existing ambient noise conditions. Additionally, the incidence of this noise is against a facade with no openings. Typical metal deck roof construction, as appears to be present, should provide transmission loss such that noise levels inside the apartment from the proposed fan discharge shouldn't exceed 30 dBA. Under Australian Standard *AS 2107:2016 'Acoustics – Recommended design sound levels*

and reverberation times for building interiors' for residential buildings in urban areas internal noise level ranges for sleeping areas and living areas recommended as follows:-

- Sleeping area: 30 – 35 dBA.
- Living area: 30 – 40 dBA.

Given the above excessive impact is considered highly unlikely from the kitchen exhaust fan proposed for the Kosaten restaurant, 254 Charles St.

NB: The northern wall of the apartment was not considered in this assessment as the transmission loss of the brick wall is likely to be high and noise transmission into the apartment through this facade negligible.

3.2 Odour

Odour emissions from the proposed kitchen fan also have the potential to impact the apartment at 256 Charles St with the eastern side of the pitched roof, where operable windows are present, the critical location.

Utilising the odour model outlined in Tarkarri Engineering report 5083_AC_R a potential odour emission level was predicted on the eastern side of the roof at 256 Charles St at window height. Figure 7 presents an aerial showing the location of the discrete receptor utilised while table 2 provides the predicted odour concertation at the receptor.

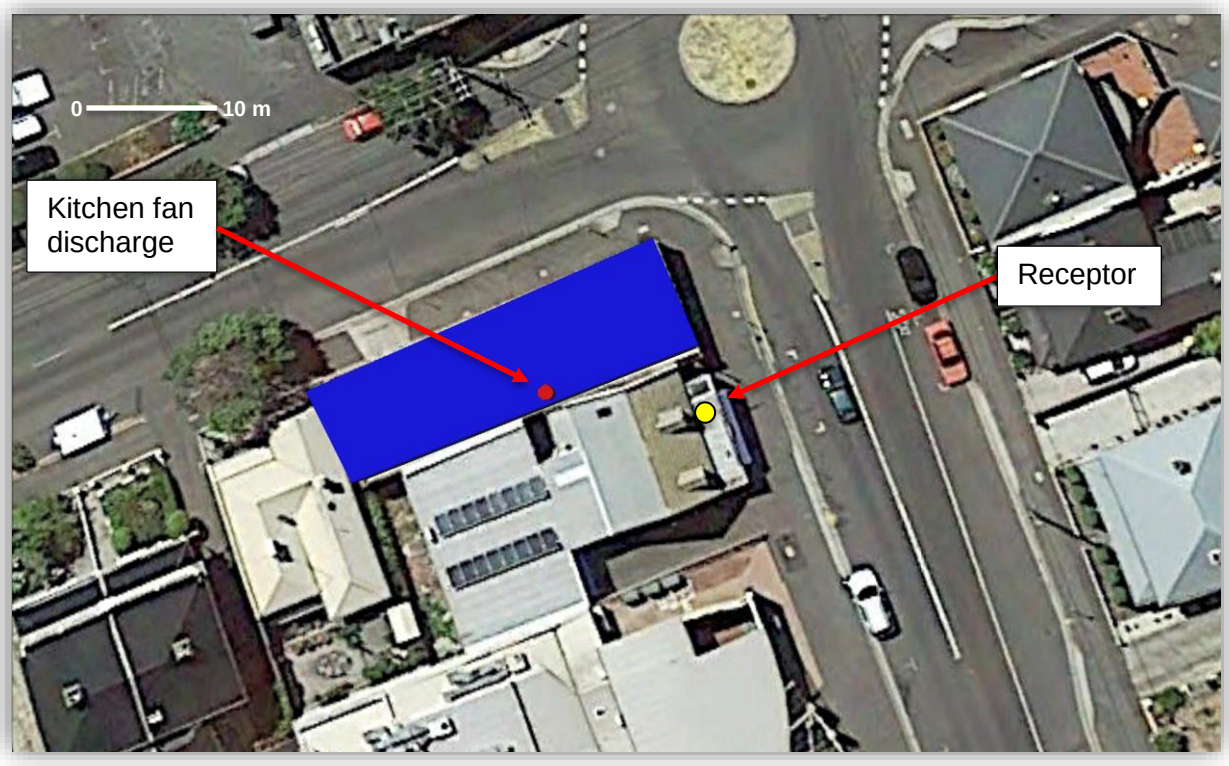


Figure 7 – Discrete receptor at 256 Charles St.

Predicted odour emission levels	
Location	Odour concentration (OU)
East (windows)	0.247

Table 2 – Predicted odour emission level.

The results show that the 99.5th percentile concentrations predicted is well below the 2 OU limit (from the Tasmanian EPP [Air Quality]) and suggests that nuisance from odour emissions from the grill and deep fryer and associated ventilation system at the Kosaten restaurant, 254 Charles St, is unlikely to generate excessive nuisance.

4. BUILDING BREAKOUT NOISE

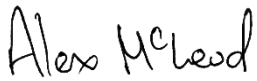
The brick wall and solid timber door wall construction and metal deck roof construction (both plasterboard internally and appropriate cavity insulation) should provide the transmission loss required to contain patron noise within the restaurant such that external noise breakout levels would be well below the existing ambient noise environment (as described in section 2 of this report).

Given the above excessive impact on surrounding residence from the breakout of patron noise from the restaurant is highly unlikely.

I hope this information meets your immediate requirements.

Please contact me directly if you have any questions concerning this work.

Yours faithfully,
Tarkarri Engineering Pty Ltd



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